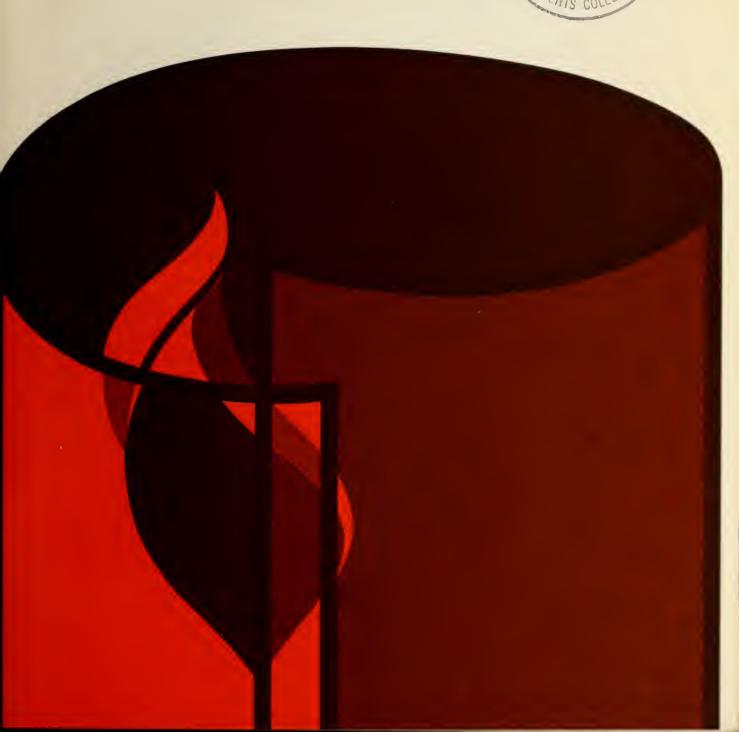
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U.S. Department of Commerce **National Fire Prevention** and Control Administration

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Third Annual Report of The Secretary of Commerce COMMENTS CO



Juanita M. Kreps Secretary of Commerce

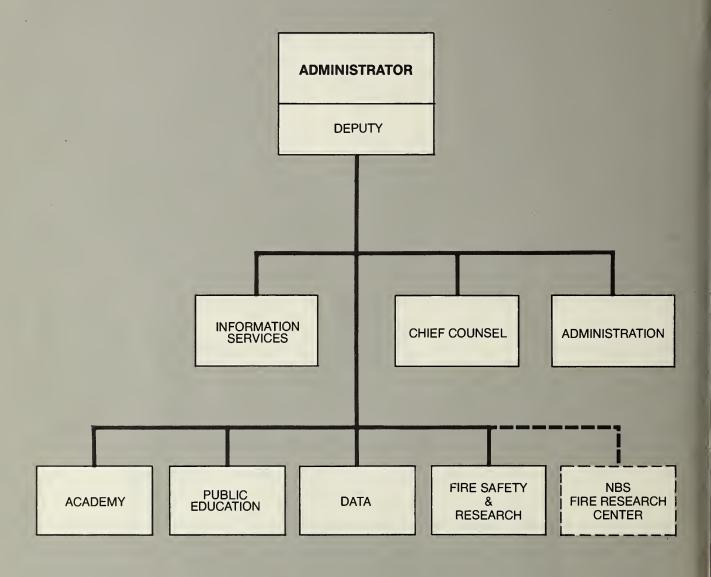
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The Third
Annual Report of
the Secretary of
Commerce
on Implementation of
the Federal
Fire Prevention
and Control
Act of 1974
Public Law 93-498
Report for Calendar Year 1976
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Figure 1
U. S. Department of Commerce
National Fire Prevention and Control Administration



his Report is submitted to the Congress and the President of the United States in accordance with the requirements of Section 16 of the Federal Fire Prevention and Control Act of 1974.

This Act established the National Fire Prevention and Control Administration (NFPCA) as an agency of the U.S. Department of Commerce. It was signed into law (Public Law 93–498) on October 29, 1974

According to the Act, this Report shall include, but not be limited to: an appraisal of human and economic losses due to fire; a survey and summary of the research and technology program undertaken pursuant to the Act: a summary of the activities of the National Academy for Fire Prevention and Control; the activities undertaken to assist the Nation's fire services; progress in public education programs; an analysis of the extent and participation in preparing and submitting fire safety effectiveness statements; a summary of outstanding problems confronting the administration of the Act in the order of their priority; recommendations for additional legislation as being necessary and appropriate; and a summary of reviews, evaluations and suggested improvements in Federal, state, local and private fire prevention and building codes and fire services.

The period of operation covered by this *Report* is from January 1, 1976, through December 31, 1976.

Organizational Structure

The NFPCA has been divided into four operating units:

- National Academy for Fire Prevention and Control
- Public Education Office

- National Fire Data Center
- National Fire Safety and Research Office

The Office of Information Services, Office of Chief Counsel and Office of Administration are part of the Office of the Administrator.

Through an agreement with the Assistant Secretary for Science and Technology and the NFPCA, the National Bureau of Standards' Center for Fire Research programs are closely coodinated and interlocked with those of the NFPCA. (See Figure 1.)

Resource Allocation

The approximate distribution of financial resources is shown in Figures 2 and 4.

The NFPCA made use of the Intergovernmental Personnel Act for the purpose of obtaining high caliber expertise on a short-term basis. During 1976, 10 individuals from local governments participated in this program.

The authorized number of full-time personnel for 1976 was 63 and 95 for 1977. "Out of house" contracts and grants represented about 80% of the total expenditures. (See Figure 3.)

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Figure 2-Financial Obligation

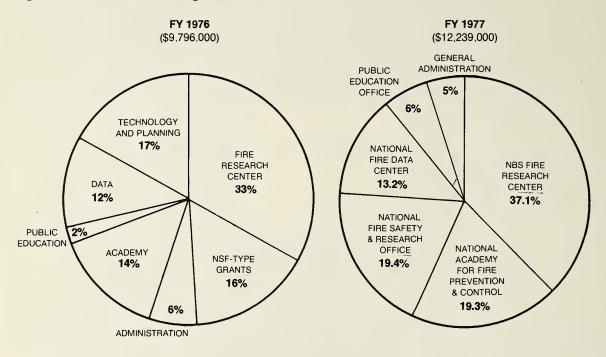


Figure 3—Full-Time Permanent Employment

(Exclusive of Fire Pesearch Center)

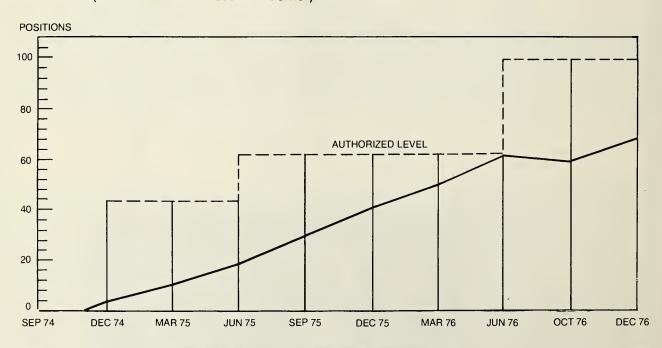
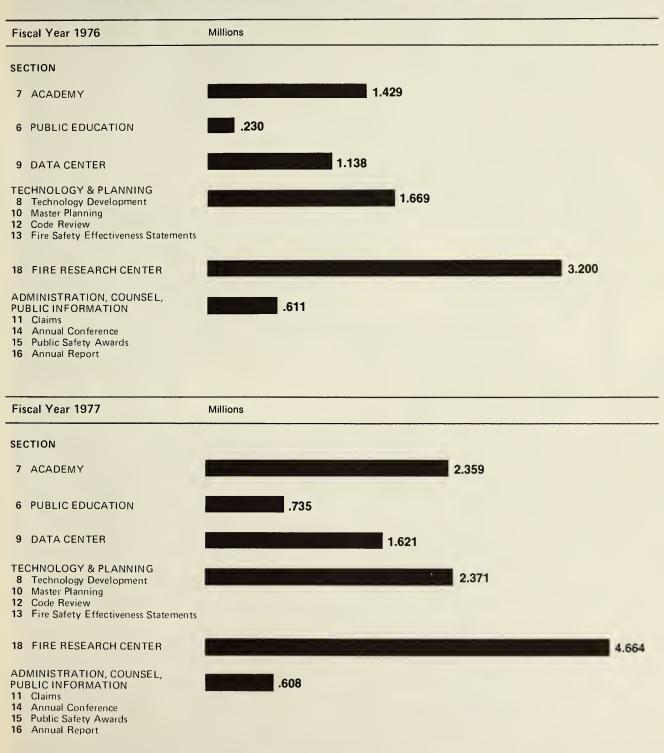


Figure 4—Financial Resources Obligated According to Act Sections





Appraisal of Human and Economic Losses

eliable data play an essential role in most efforts to improve the fire situation. Such data are needed to: (1) describe the national fire problem and trends, (2) determine priorities, (3) provide information for targeting specific programs, (4) evaluate the performance of various fire protection programs, and (5) assist and support activities of fire services in state and local government and others concerned with firerelated activties.

National estimates of fire deaths have been significantly revised for the previous year, based on initial analysis efforts of the National Fire Data Center. The Center currently estimates 8,000 deaths occur each year. According to figures from the National Fire Protection Association (NFPA), there are also over 300,000 annual injuries (40,000 seriously). Property loss remains very high. NFPA estimates \$4.2 billion in losses, while the American Insurance Association reports \$4.8 billion.

There are several well-known problems in making such estimates. There are differences in basic definitions, such as what is a reportable fire, and in the completeness and accuracy of data collected from the field. There are also differences depending on whether only fire department-reported fires are included or the results of studies on unreported fires, as well as estimates from household surveys or insurance claims, are to be included.

The National Fire Data Center has been actively working on developing a methodology for making improved fire estimates and assessing their validity. The first set of national estimates by the Data Center is planned to be issued in 1977. A variety of available sources containing fire-related data has been studied to make maximum use of existing data systems.

Mobile Home Fires

A preliminary analysis of available data on mobile homes (from the National Fire Incident Reporting System, State Fire Marshal, and Department of Housing and Urban Development Reports) revealed that the rate of fires per mobile home was less than the rate of fires in conventionally built oneand two-family dwellings. The fatality rate for mobile homes, however, was nearly four times as great as in conventionally built homes. About 40% of the fatalities involved smoking materials as ignition sources. Among other problems contributing to losses or casualties were malfunctions of equipment contained in the mobile homes, and suspicious and incendiary fires.







U.S. and Other Nations

Comparisons of fire losses in the United States with those reported for other developed countries show that the U.S. continues to have the worst record; probably at least twice the fires per capita as Western Europe and Japan. A study of reasons for this large difference indicates that the gap really does exist and is not just an artifact of different data collection methods. However, the gap seems to be closing—the others seem to be getting worse faster than the U.S.! On the other hand, U.S. losses per fire (as opposed to per capita) seem no worse than average among these nations. The estimated per capita fire loss for the U.S. is \$18, whereas the comparable loss (in U.S. dollars) of twelve other industrialized countries ranges from \$2.70 to \$9.60. The figures for deaths and injuries are comparable. The U.S. also seems to have proportionally much more equipment and men devoted to fire suppression than other countries, and less for fire prevention. The picture emerging points again toward emphasizing the need for improvement in fire prevention in the U.S.

National Fire Incident Reporting System

The National Fire Incident Reporting System (NFIRS) became operational in 1976, with five states—Maryland, Missouri, New York, Ohio, and Oregon-participating in the first stage. NFIRS is a cooperative Federal-state-local effort. The Data Center provided model fire incident and casualty reporting forms, training manuals, and computer software to each of the participating states. It also provided training and advice on software installation and use. A small amount of financial assistance was also provided to partially offset

start-up costs.

NFIRS calls for local fire departments to report a common core of data elements using a uniform coding scheme. These Reports on each fire incident are sent to statelevel offices, usually the state fire marshal, where they are computerized and the data analyzed for use by the state and its local governments. A "catalog" of output reports that can be produced from NFIRS data was developed in the Data Center and the computer program that generated these reports will be made available to the states. This will permit state governments to give local fire jurisdictions a choice of reports to receive.

Regular collection of data on a quarterly basis was started with three of the participating states: Ohio, New York, and Missouri. Data for 1975 was obtained from California, which has a first data collection system largely compatible with NFIRS. By the end of 1976, 305,132 reports on individual fires were in the NFIRS data bank. The data center hopes to expand to all 50 states by 1981. The data collected by NFIRS are combined with data from other sources and used to produce national estimates and identify trends.

A computer program that can identify the most common fire scenarios from the raw NFIRS data was developed and used to identify leading scenarios from state data received to date. The scenarios will be used in establishing priorities for fire research and other progams.

The Consumer Product Safety Commission, the Law Enforcement Assistance Administration, the National Bureau of Standards, many fire departments, and other organizations were among the 25 outside groups which were provided with

tabulations of NFIRS data. These tabulations illustrated the information available to decisionmakers; the data collection system is being shaken down and the quality of the initial data necessitates limited and careful use until further improvements are achieved. A formal program to evaluate and improve the validity of the NFIRS data was initiated.

While NFIRS data can be used to identify a fire problem, the detailed information frequently needed to devise effective education campaigns or develop national standards can only be obtained from special in-depth investigations. In 1976 the Data Center started to establish a nationwide network of existing state and local fire investigators who will conduct in-depth investigations on selected types of fires. The states of Washington, Oregon, and Michigan, and Dade County, Florida, are the initial test jurisdictions. An interagency agreement was reached with the Department of Housing and Urban Development to further develop this network and use it to investigate mobile home fires for purposes of assessing the adequacy of existing Federal mobile home standards. Tentative understanding was also reached with CPSC for investigating classes of consumer product fires.





Reference Service

A system design for Fire Technical Information Service was completed in 1976. The Service will be a national focal point for referring questions of fire protection to appropriate sources and helping to ensure that existing fire protection information is accessible and its availability known. It will attempt to fill some of the information service gaps identified by 24 fire service, industrial, Federal, and research organizations in the course of a three-day, "potential users" conference. By the end of 1976, the existing Fire Reference Service was answering queries concerning a wide range of fire protection topics at a rate of 70 a month, with over half of these coming from outside the Fire Administration.

In 1976 the Reference Service also started a special collection of reference material on prevention, identification, and prosecution of arson, following the recommendation of a major arson seminar held at Battelle Memorial Institute, which included representatives of all sectors involved in the problem. The Reference Service also launched Fire Technology Abstracts, a bimonthly publication of abstracts of the worldwide fire protection literature that will complement the existing, more researchoriented Fire Research Abstracts and Reviews; issued a directory of Federal Funds available for local fire protection programs to inform local governments and others of existing opportunities; and developed its physical library plant and provided library service to NFPCA.

The Center's analysts provided consulting on statistical methodology and experimental design for a variety of fire protection analyses within and

outside the Fire Administration.

Since fire is of interest to many Federal agencies other than NFPCA, an effort was made in 1976 to learn about the fire data needs of these agencies and establish cooperative arrangements with them.

Special attention was given to those Federal agencies which are planning new data systems that include some fire-related information, such as HEW/ Emergency Medical Service and National Institute of Occupational Safety and Health, in order to coordinate requirements and avoid unnecessary duplication.



NATIONAL FIRE DATA CENTER Highlights for 1976

- National Fire Incident Reporting System (NFIRS) installed in five states.
- Fire incidents (in computer readable form) received

- from three NFIRS states (Missouri, Ohio and New York).
- 1975 fire incidents received from the California Fire Incident Reporting System. These incidents were converted to NFIRS format and incorporated into NFIRS.
- A total of 305,132 fire incidents were incorporated into NFIRS in 1976.
- Data tabulations and reports were provided to 25 outside organizations from the NFIRS data.
- A "catalog" of output reports that can be produced from the NFIRS data has been developed.
- A preliminary investigation package has been developed for conducting in-depth fire investigations on selected fires that are determined to be of special interest or have special associated problems.
- Performed a preliminary study comparing the fire experience of the U.S. with other developed countries
 —the larger fire rates of the U.S. appear to be real rather than an artifact of different data collection methods.
- Completed a review of various data sources pertaining to national estimates of fire fatalities—the principal difference is in the estimated number of firerelated motor vehicle deaths.
- Conducted a detailed analysis of data from the 1974
 National Household Fire Survey—about 87% of fires are not reported; most injuries arise from cooking fires.
- Completed first phase of an evaluation of firefighter physical fitness programs only 300 of the 1,000 fire departments surveyed had some sort of program.



Research and Technology Programs

wo distinct areas of fire research and technology programs were recognized in Public Law 93-498. While overlapping authority exists, these two areas generally follow the distinction between fundamental and applied research and technology and are carried out in separate organizational entities. Fundamental and applied research is conducted by the Center for Fire Research at the National Bureau of Standards; applied research is carried out by the National Fire Safety and Research Office of the NFPCA. Both programs are coordinated to assure mutually supportive actions and both are presently working on a National Fire Research Policy.

CENTER FOR FIRE RESEARCH

The Center for Fire Research within the Commerce Department's National Bureau of Standards focuses primarily on one aspect of the fire problem: developing through research the basic technical knowledge of fire and its effects for the reduction of fire losses.

With the Federal Fire

Prevention and Control Act of 1974, Congress gave the Center a broad mandate for research.

The Act charges the Center for Fire Research with developing an understanding of fundamental processes of fire, including its physics and chemistry; its behavior, spread and growth in buildings; the fire hazards arising from transportation of combustible fluids and materials; and design concepts for increased fire safety in the built environment. The Congress also authorized the Center to carry out investigations into the biological, physiological, and psychological factors affecting the victims of fire. In particular, the biological and physiological effects of toxic substances on fire victims, and the psychological and motivational characteristics induced either by fire stress or fire trauma are to be systematically studied.

In response to this mandate, in early 1976 the Center developed a research plan. It analyzes how most accidental fires occur, shows how research may be applied to reducing fire losses, and sets priorities for action. By focusing research on the most probable fire situations, chances will be improved for preventing such fires and reducing the losses they cause.

In 1976, the Center not only developed the research plan, but also established the Office of Extramural Research. The Office manages grants to universities and contracts to research institutes and private firms which complement the research work conducted in-house. Included among these grants and contracts are a major portion of the fire-related grants formerly sponsored and managed by the National Science Foundation. The external research represents about one third of the Center's program; the accomplishments discussed below and the overall fire research program conducted at NBS are heavily dependent on this extramural work.

The Center is addressing the fire problem on four fronts: ignition control, control of fire spread and growth, detection and suppression, and design concepts for people protection in buildings. Each major technical accomplishment for fiscal year 1976 fits into one of these four categories.

Control of Fire Growth and Spread

It is well accepted that the best way to control fire is to prevent it from starting.





However, it is impossible to eliminate all or even most ignition incidents. Given an ignition, if the spread and growth can be controlled, the potential for damage is reduced and the chances for victims to escape are improved.

Reducing fire deaths in the U.S. involves principally the reduction of fires at home. Because most fire deaths occur in residences, starting in furnishings rather than in the structure, the Center's focus has been on how the fire develops and grows in a single room. Researchers call this the "compartment fire problem."

Great strides were made during 1976 in being able to predict fire growth in a room from small-scale models. This shows the potential for reducing our traditional dependence upon expensive, full-scale testing.

Similarly, progress was made in analytical modeling of fires in rooms and corridors, namely, the development of detailed flow patterns in corridors and simplified model of fire in a room. Ultimate success in these ventures will mean further reduction in the need for full-scale experiments; the model will be used instead. Finally, when we are able to predict how a fire will develop, we will then be able to design residences and other buildings so that these fires occur less often and cause less damage when and if they do occur.

The Center's research findings form the basis for standards implemented by standards-making bodies. These bodies include Federal agencies having regulatory powers, model code groups, state and local officials, and voluntary standards groups. All of these groups have an interest in reducing fire losses by controlling fire gowth and spread.

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Ignition Control

The widespread influence of research conducted by the Center and its implementation into decisions affecting the public are highlighted by several 1976 accomplishments. First, the Center, in cooperation with the Washington Metropolitan Area Transit Authority (WMATA), studied the fire hazards likely to arise from newly purchased mass transit vehicles. Using CFR findings, WMATA decided to change specifications for seats and wall linings in further shipments of buses and cars. Coordination has also been maintained with the Department of Transportation in order that new and improved fire safety standards may be developed in this area.

A research program on the fire safety of mobile homes was conducted at the request of the Department of Housing and Urban Development (HUD) which has the authority to set Federal standards in this area. HUD's concern in this area was prompted by statistics that showed fire losses in terms of deaths and damages to be many times greater in mobile homes than in conventional residences even though the rate of fire occurrence was not greater. In 1975, estimated property loss in mobile home fires was \$72,900,000. The apparent hazard is multiplied as the number of people living in mobile homes increases. Roughly one of every 27 Americans is currently living in a mobile home. As costs of conventional homes rise, it is likely that more and more people will choose mobile homes as a feasible housing alternative. Thus, this work will be affecting fire safety for an ever-increasing number of Americans.

This project is the first major full-scale effort directed toward



measuring the fire growth phenomena in mobile homes. The project involved the complex interaction of heat transfer, fluid mechanics, and chemical combustion processes. The work has provided important technical information on the hazards resulting from an ignition on kitchen ranges, and recommendations for protection of the walls and cabinets have been incorporated into the mandatory Federal Mobile Home Standard and the corresponding voluntary standards of the National Fire Protection Association (NFPA).

Center staff members made important contributions to the model building code groups, one of the major ways of getting the Center's work into the public domain. Center researchers drafted a proposed revision of the National Fire Protection Association (NFPA) Life Safety Code's Chapter on Residential Occupancies. The Life Safety Code is one of the principal models for building codes in the county. Since twothirds of the Nation's fire deaths occur in residences, local adoption of the Center's proposed new residential provisions can substantially reduce future fire losses.

Detection and Suppression

In addition to reducing losses by controlling the growth of fire, losses can be reduced by deteting the fire soon after it occurs. Smoke detectors can detect the presence of fire or smoke and alert occupants who might otherwise perish.

Over 30 states have passed laws requiring the installation of smoke detectors in some types of housing. Many of these laws have been based on the National Fire Protection Association Standard No. 74 on Household Fire Warning Equipment. In the past, the standard required a minimum safety level of one detector outside the bedroom area and one at the top of the basement stairs. As a result of CFR work conducted in the Indiana Dunes Project, the NFPA has rewritten its Standard No. 74. The new version which will be voted on by NFPA membership in the fall of 1977 is based on the "every level" concept developed by the Center. This means that a detector would be required on each level of a home; a ranch style house with a basement would require one detector in the basement and one on the first level, a two-story home with a basement would require an

additional detector on the second floor, and so on. The "every level" concept forms the basis for legislation passed recently by the State of Massachusetts. The legislation requires a detector on every level of all new housing units including single family homes, townhouses, and apartments. In light of this new information, it is anticipated that code groups and state and municipal governments will be revising their detector requirements for residences.

As was the case last year, work continued during 1976 on improved concepts for testing and evaluating smoke detectors and sprinkler systems. Work continues on the development of a sprinkler system at an affordable price which can be used in residences.

People Protection

The program on design concepts, which last year worked on alarm and communications, in 1976 developed a new concept for establishing quantitatively the level of fire safety required by codes. Using this level of safety, a means of rating various designs of structures has been devised which permits officials to determine whether or not equivalent levels of safety are provided. This system is now being tested in the field on a series of hospitals.

Further studies were conducted on the toxic effects of fire gases. Significant progress was made toward a draft standard method of test for toxicity. It now appears likely that a test method will be published for comment during 1977 and that a consensus among toxicologists and the fire research community will be reached soon after. The method will then be available for use by industry and by regulating officials.





CENTER FOR FIRE RESEARCH Highlights for 1976

- Established the Office of Extramural Research to manage grants and contracts.
- Advanced ability to predict full-scale fire behavior from small-scale models.
- Studied fire hazards likely to arise from new urban mass transit vehicles.
- Conducted first major fullscale investigation of fire growth in mobile homes.
 Recommendations were incorporated into HUD and NFPA standards.
- Drafted revision to NFPA's Life Safety Code's chapter on residential occupancies.
- Published report on location of smoke detectors and advantages of "every level" coverage.







NATIONAL FIRE SAFETY AND RESEARCH OFFICE

Development of planning guidelines for urban and rural areas, a national conference on fire protection master planning, development of improved firefighters' protective equipment, and a review of local government smoke detector programs—these are but a few of the major accomplishments of the NFPCA's National Fire Safety and Research Office.

Fire protection is becoming more technically complex and sophisticated every day. But a "gap" exists between the technical fire community (scientists and engineers) and the intended beneficiaries of their efforts (architects, firefighters, etc.). These users are often unaware of research and technology programs or the corresponding conclusions and recommendations of these programs. Results are often presented in such a way that users cannot understand or apply what has been learned. Because of this, the Fire Administration is developing improved methods to capitalize on the investment that has been, and is going to be, made in fire protection research and technology programs.

A program has been established to develop the best techniques for distributing and transferring fire research and technology program results. This program is beginning to provide information concerning these techniques to appropriate members of the fire community. Distribution of results is becoming a more important part of each research and technology program.

Improved distribution of results will be done by:

 Accelerating the dissemination process on high priority results. Increasing the awareness and the use of ongoing research activities.

To date, the Fire Safety and Research Office has completed one project and initiated another in research utilization: a conference on research has been completed and a study of fire service research utilization has been initiated.

The "Conference on Fire Research Needs" was held in Silver Spring, Maryland, in July 1976. This conference was organized to bring together representatives of the fire services, research personnel, and other members of the fire protection community to review current planning, research, and technology projects and results; define the fire problem; and seek solutions with the help of modern research and technology.

More than 150 firefighters, scientists, engineers, architects, fire department officials, as well as industry administrators, met to define and discuss information which the user community is seeking from the research community.

Research Office programs are organized into three sets of objectives, all aimed at delivering the results of technical efforts which can impact our national fire loss. The three sets of objectives are grouped under programs in Technology Development, Master Planning and Regulatory Impact.

Technology Development

Residential Fire Safety

The majority of human loss in fires occurs in residences. New devices and systems, and especially smoke detectors, are generally available to improve residential fire protection. However, until recently, public

acceptance was slow, and the greatest use of these systems was found in new construction covered by building codes. Many of these codes now include requirements for detectors in certain residential occupancies. This is a plus for fire protection.

The Fire Safety and Research Office, realizing the importance of having smoke detectors in every home, established an overall program to increase the acceptance and use of early warning fire detectors in residences.

The objective of the Office's first project in residential technology development was to obtain information on successful detector programs currently in use by state and local governments. Results of the nationwide study will be made available in 1977 to interested states and communities to assist them in developing and implementing similar programs. Programs which were identified and reviewed included:

- Codes or regulations which require the installation of existing structures;
- Non-regulatory incentives for the purchase and use of detectors, such as homeowner's insurance discounts.

A systems approach to design of residential fire protection devices and equipment began to take shape. A study was initiated of the probable impact on human and economic loss of heat and smoke detectors and automatic sprinklers. All fire incidents in Maryland which result in fatalities are being examined by experts from the State and Johns Hopkins University Applied Physics Laboratory with the guestion: "What would have happened if a fire protection device had been installed here?" Likewise, study was undertaken of the

needs perceived by homeowners for smoke detectors; manufacturers were also asked for expert opinions on the future needs for this technology and its development. Low-cost systems to automatically control home fires were perceived as a need, and development of such a system was initiated.

Firefighter Protective Equipment

The most dangerous occupation in the United States continues to be firefighting. Improvements have been made in the firefighter's work clothes (his helmet, his turnout coat, his boots, etc.). Previous programs, however, have only attacked individual items of the firefighter's protective equipment.

A complete analysis of requirements and the development of a fully integrated protective system are clearly needed. To address this need, the Fire Safety and Research Office has begun a program to establish total requirements for the protection of firefighters engaged in fire suppression and rescue operations and to develop an integrated protective system which meets these requirements. The experimental protective system will be tested under laboratory and field conditions and the resulting equipment specifications will be supplied to manufacturers, the fire services, and standardsetting organizations. With the cooperation of fire service experts in establishing priorities and requirements, five tasks have been completed:

1. The thermal environment to which a firefighter is exposed in actual structural firefighting situations has been measured. Final results of this project will define the firefighter's thermal

working environment from which design criteria for protective clothing can be developed.

2. Washington State was the first to adopt a set of Safety and Health Standards for Firefighters. This plan has been technically reviewed to determine what changes are needed to produce a model firefighter safety and health plan which can be adopted by other states.

3. A "high technology" protective and life support system for the individual firefighter has been designed, and a prototype model put together. The system consists of head, body, hand, and foot protection and includes breathing, cooling, and communications features. The objective of this project was to demonstrate that advanced technology can be applied to provide top protection for firefighters.

- 4. Performance criteria have been established for an improved firefighter's helmet. These criteria were established for the helmet only (excluding face shields of other additional equipment) and were developed for use by standard-setting organizations in preparing a standard for firefighters' helmets.
- 5. The initial phase of the Firefighters' Integrated Response Equipment System (FIRES) project has been completed as part of a joint venture with the National Aeronautics and Space Administration. The objective of this project is to design, develop, fabricate, field test, and evaluate an improved firefighters' integrated personal protective system. The ultimate goal is to provide the Nation's fire services, and

their suppliers, the design criteria for improved protective clothing and breathing apparatus. Utmost consideration will be given to reducing weight and improving performance, while keeping costs within reason. This specific project is the culmination of the current protective equipment program and will use the results of the other projects as design requirements.

Fire Protection Master Planning

Systematic master planning was recommended by the National Commission on Fire Prevention and Control. It was also emphasized in the legislation establishing the Fire Administration. Because of this, fire protection master planning has been one of the major programs of the National Fire Safety and Research Office.

Initial efforts in master planning uncovered the fact that a single set of planning guidelines would not meet the requirements of all jurisdictions, ranging from rural communities to state governments. Instead, it was determined that a number of planning processes would have to be developed—for small communities and rural areas, urban areas, multijurisdictional counties and states.

To date, the field testing of the Urban Guide for Fire Prevention and Control Master Planning has been completed. The final manuscript has been delivered to the Fire Safety and Research Office by the City of Los Angeles and City of Mountain View (California) Fire Departments, who developed the Urban Guide through an NFPCA grant. Printing and distribution of the Urban Guide is expected early in 1977.



To supplement the *Urban Guide*, work is continuing on the development of a *Small Community and Rural Guide for Fire Prevention and Control Master Planning*. This new document is being developed under a grant issued to the State of Oklahoma Fire Marshal. Field testing of this manual was begun in 14 communities around the country. The 14 communities selected were:

- Benton County, Arkansas
- Northwest Missouri Regional Planning Commission
- Clarendon County, South Carolina
- Princeton, Massachusetts
- Devils Lake, North Dakota
- Springlake, California
- Longmont, Colorado
- Forest Grove, Oregon
- Maderia Beach, Florida
- Godfrey, Illinois
- Williamsburg, Pennsylvania
- Seymour, Tennessee
- South Charleston, Ohio
- Flagstaff, Arizona

The field test is expected to be completed in June 1977, and the manual available by the Fall of 1977.

During the year, a grant to the State of Illinois was completed that established some preliminary guidelines for State-level fire protection master planning. These results will be utilized to establish a state level master planning process.

The studies have also developed a way to disseminate the master planning guidelines and related materials and to technically support the use of these items by state and local organizations. Working with the Fire Academy, the NFSRO Staff has provided technical assistance in preparing fire protection master planning courses for presentation to members of the fire service,

management, and other involved organizations.

Regulatory Impact

The Fire Safety and Research Office initiated a regulatory impact program in the last quarter of 1976. Staff was recruited and plans laid for an effort to carry the Congressional authorization in Section 12 of P.L. 93–498. That Section of the Act authorizes the Office to "review, evaluate, and suggest improvements in State and local fire prevention codes, building codes, and any relevant Federal or private codes and regulations."

Currently, building codes are produced generally as the result of tradeoffs and compromises between conflicting demands. This situation has arisen because a systematic technical basis for fire codes, standards, and regulations has not been documented and disseminated. Code-setting authorities must know the effectiveness of alternative prevention, suppression, and life safety techniques if regulations are to be radically and immediately improved.

Some preliminary work has been accomplished in this program area, centered around the subject of architectural approaches to fire safety. Two projects were undertaken through grants to the University of California (Berkeley).

The first is the use of a computer model to study the performance of elevators in crisis situations. This model is to be used in the design of high-rise buildings and as an aid to firefighters and building managers. The second task involved development of architectural approaches to the reduction of multiple death fires in urban housing. This task included the study of typical urban housing to establish a basis for the design of fire

safety systems, to estimate the costs of various approaches, and to investigate potential modifications to code practices and equipment which will make improved designs practical.

Finally, through a grant to Princeton University, an analysis of residential fires is being performed to identify architectural and other techniques for the reduction of home fire losses.

Reports cover the following topics: (a) causal characteristics; (b) relationships of the socioeconomic status of population groups to residential fire incidence; (c) effects of the physical layout of residences on fire loss; and (d) statistical analysis of social and economic causes of residential fire loss.



NATIONAL FIRE SAFETY AND RESEARCH OFFICE Highlights for 1976

Technology Development

- Completed review of state and local codes requiring smoke detectors.
- Completed preliminary study of the impact of residential fire protection systems in actual fire deaths.
- Initiated analysis of needs of residential occupants and manufacturers for smoke detection and alarm.
- Initiated development of low-cost residential suppression system.
- Established preliminary requirements and a program plan for the design, development, field test, and evaluation of an integrated firefighters'
- protective equipment system.
- Completed laboratory and simulated field tests to define firefighter physical performance requirements.
- Evaluated thermal and toxic environment of structural firefighting situations.
- Initiated research and design of a reporting system for identification and analysis of firefighter injuries.
- Published and disseminated analysis of firefighters' accidental death causes.

Master Planning

- Completed nationwide field testing of Urban Guide for Fire Prevention and Control Master Planning.
- Completed final manuscript of *Urban Guide* for printing and distribution.
- Initiated nationwide field testing of Small Community and Rural Guide for Fire Prevention and Control Master Planning.
- Completed concept for Delivery System for support of master planning efforts.

Technology Transfer

 Major conference of researchers and users on fire research products and needs.

Regulatory Impact

Program organization and staff development.







Activities of the National Fire Academy 1976

he objectives of the National Academy for Fire Prevention and Control are to develop and test courses and curricula for use by the Academy, state, and local governments, colleges, and universities; to deliver training and education courses at the Academy site and through the Academy system; to provide assistance to states through grants for the development of 1) statewide education and training organizational designs and 2) comprehensive statewide education and training plans and to provide technical assistance to state and local agencies and to vocational training programs and to colleges and universities in order to encourage new education and training programs or strengthen existing programs in fire technology, management, and administration.

To accomplish these objectives, the Academy is organized into three functional units: 1) Operations, Planning, and Evaluation, which is responsible for the overall management of the Academy and the planning and evaluation of its programs; 2) Education and Training, which is responsible for the development and delivery of fire protection education and training programs for use by the Academy and by state and local organizations; 3) Education and Training Assistance, which is concerned with the financial and technical support of state and local training and education organizations and institutions and with financial support of individuals enrolled in education and professional programs.

OPERATION, PLANNING, AND EVALUATION

In passing the Federal Fire Prevention and Control Act of 1974, Congress emphasized that an education and training headquarters facility for the Nation's firefighters was essential if the fire loss reduction effort were to succeed. It was the intent of Congress that the Academy headquarters facility be a small but excellent campus with a first-class staff and facilities to serve as the focal point for the professional training of the fire services and others concerned with fire prevention and control. The Act further provided that the Academy be located on a site the Secretary of Commerce would select after consideration of recommendations of a 3-member Site Selection Board. In January 1976, the Secretary appointed to the Board John L. Swindle, Chief, Fire Department, Birmingham, Alabama; Henry D. Smith, Chief, Fire Service Training, Texas A & M University; and David M. Mc-Cormack, Academy Superintendent, Chairman. The Board, in making its recommendations, was required to give consideration to the training and facility needs of the Academy as well as to environmental factors such as the possibility of using surplus government facilities and other important and relevant factors.

The Site Selection Board, after investigation and examination of more than 220 proposals from 38 states, recommended that the Secretary of Commere select the former

Marjorie Webster Junior College property in Washington, D.C., as the Academy site. Among the reasons the Board favored Majorie Webster was that it was designed and built as an educational facility. The campus itself, while modest in size, provides an environment conducive to the concentrated study mode basic to the proposed Academy method of instruction. Students will be able to live on campus.

Another reason for the choice of Marjorie Webster campus was that it allows collocation of the Academy with other NFPCA programs. The mission of the Academy is closely interrelated with the overall mission of the Fire Administration and its other major elements. Academy programs are dependent in part on the continuing research by the National Fire Safety and Research Office and the National Bureau of Standards' Center for Fire Research. The National Fire Data Center is an indispensable store of data feeding directly to the Academy programs and curricula. The Public Education Office provides information and techniques used by the Academy and, in turn, the Academy serves that office with its instructional resources. Close interaction among all program elements of the NFPCA is essential; especially since the Academy is to be the delivery system for the National Fire Administration's programs.

On August 30, 1976, the Secretary of Commerce, Elliot Richardson, announced the selection of Marjorie Webster College as the site of the National Fire Academy.

Academy Planning Efforts

The Academy went to work developing its programs and its national system. The Far West Laboratory for Educational Research and Development was contracted to make an intensive study for the systematic development of Academy programs. The study will aid in the formulation of the educational and training requirements, analytically review existing training systems, identify target groups and their training needs, formulate criteria by which to evaluate alternatives, and identify the most cost-effective program alternatives.

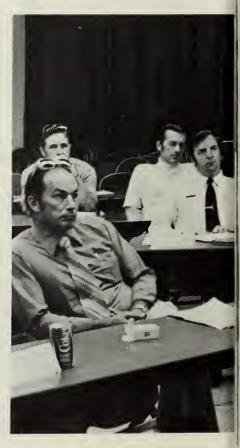
In addition, the Academy began developing position papers detailing its program objectives as articulated in the agency's Five-Year Plan. A study was also made relating Academy program requirements to the utilization of space at the Marjorie Webster facility. Further, a study was begun to examine the relationship of college and university programs to the National Academy system. Specifically, this study will identify existing and potential student populations and delineate new and innovative programs which colleges and universities might generate. In a grant to the Statistical Laboratory of the University of Wisconsin, the Academy is developing a comprehensive statistical analysis of the 1975 National Survey of Education and Training programs.

EDUCATION AND TRAINING

This Division of the Academy develops and delivers programs to improve the ability of the fire service and others in reducing fire losses. Courses are being developed, based upon educational research, while maximum advantage is being taken of existing and tested programs. In addition to conducting classes and seminars at its own facility, the Academy will serve as the hub of a nationwide network which disseminates educational programs to and through existing fire training schools, fire science programs in community colleges, and fire management and fire protection engineering programs at the college or university level.

The National Survey on Training and Education con-







ducted during 1975 and 1976 recommended that the Academy offer courses responsive to fire service and fire protection practitioner needs. For example: 70 percent of the fire departments do not require officer development training; 60 percent do not conduct inspector training; 24 states do not provide fire prevention training. Fire losses in the United States are primarily affected by decisions made by people on the state and local level. To reduce fire losses, more technically qualified people are needed and, through them, more informed decisions must be made.

During 1976 the following courses and conferences were conducted:

An Analysis System for Fire Service Operations

Instructional materials for this course, developed in 1975, were pilot-tested in 10 classes from July through December 1976 at:

- Washington, D.C.
- Charlotte, North Carolina
- Yonkers, New York
- Dallas, Texas
- · Miami, Florida
- Milwaukee, Wisconsin
- · Cincinnati, Ohio
- Salt Lake City, Utah
- Phoenix, Arizona
- Oakland, California

All sessions were co-sponsored by the state agency involved in fire service training and the National Fire Academy.

Student enrollment was 174 with students from state fire service training agencies, state fire marshals' offices, paid fire departments, combination paid-volunteer fire departments, and volunteer fire departments.

Ninety different fire-related agencies were represented in the 10 training sessions which totalled 6,900 student hours of

classroom work and 3,500 student hours of post-course field work.

The Analysis System course is designed to train local fire departments to analyze their operations. Through the analysis process, fire service personnel can determine equipment, manning, procedural, efficiency, and safety problems.

Fire Safety in the Built Environment

Inasmuch as two-thirds of the losses in life and over threefourths of the losses in property result from building fires, there is an evident need for more effective fire safety considerations in planning, design, construction, and maintenance of our built environment. A lack of education and training within the disciplines impacting on fire safety in buildings is a major reason that architects, planners, designers, engineers, and builders give so little attention to fire safety. In order to identify the problems in and to develop specific recommendations for the type of education and training programs the National Fire Academy should encourage and/or support, the Academy conducted an interdisciplinary conference at the University of California, Berkeley, on January 26-28, 1976, of a selected, knowledgeable group within all professions impacting on fire safety in buildings. The Conference was structured into four discussion panels. Conclusions and recommendations reached are reported by these panels and will form the basis for course development.

The Academy has established liaison with several professional associations in the fire safety in buildings area to obtain input on its program development. Among these are the American Institute of Architects, Foundation for Interior Design

Education Research, American Institute of Planners, and Society for Fire Protection Engineers.

Fire and Arson Investigation

A two-phase seminar on arson detection and investigation was conducted in early 1976 through a grant to Battelle Columbus Laboratories, Columbus, Ohio. Thirty-six leaders from the fire service, the police service, criminal justice, the insurance industry, and the financial community met for three days in January 1976, to explore measures necessary in establishing a coordinated attack on arson. Following an interim report, the group reconvened for two days in February to formulate their recommendations which were published in a seminar report, "Arson: America's Malignant Crime." The first printing of 5,000 copies was distributed in less than two weeks and a second printing was required. The report, which defines nine needs areas and makes over 40 recommendations, has received favorable attention from fire, law enforcement, and insurance authorities and has contributed significantly to the current high level of national attention on the arson problem.

During the closing months of 1976, the Academy favorably reviewed an unsolicited grant proposal from Lincoln Land Community College, Springfield, Illinois, for development of a Fire/Arson Investigation Course. This proposal, which included representation from Springfield and seven other cities in central Illinois, the Illinois State Fire Commission and the International Association of Arson Investigators, among others, was approved by the Academy in December 1976. A grant should be awarded in 1977 for this endeavor.

Instructor Training

Under a grant from the Academy, Oklahoma State University conducted a working seminar, May 11-13, 1976, to make recommendations for development of a model course for preparation of fire service instructors.

Existing Instructor Training Course packages developed by other Federal agencies such as U.S. Civil Service Commission, Department of Defense, the U.S. Forest Service, and the Bureau of Land Management are being reviewed and related to the Oklahoma State University Conference Report and

the National Professional Qualifications System Instructor Training Standard. These sources will be used toward the development of the Academy's Instructor Training Program. Work was also begun on the identification of data elements for a computer-based records system for instructors, students, and courses.

Executive Development for Fire Officials

Under a grant from the Academy, 29 educators and fire service managers participated in a conference conducted at Texas A & M University July 19–22, 1976, to assess the needs and priorities for management level fire service courses. The conference report will serve as one of the Academy planning resources for an Executive Development Series and related management training programs.

Labor Relations

On May 25, 1976, in conjunction with the California Fire Chiefs Association, the Academy conducted a seminar on Labor Relations for 300 participants. This program provided an opportunity to test concepts and will provide a



foundation for future course development.

Master Planning

In conjunction with the National Fire Safety and Research Office of NFPCA, the Academy conducted a Master Planning Orientation course on two consecutive days at the 103rd Convention of the International Association of Fire Chiefs in San Antonio, Texas. Attendees totaled 350. Development of two courses—Overview of Master Planning and Preparation of Fire Protection Master Plans—is underway.

Maritime Training

The Academy has developed continuing liaison and entered into joint funding for cooperative programs in Maritime Fire Safety Training with the Maritime Administration of the U.S. Department of Commerce and the Maritime Training Advisory Board.

Role of Community Colleges and Universities

Colleges and universities are expected to be an important contributing component in the Academy's national system of out-reach programs. To help determine the optimal role community colleges and universities should play in fire service education and training, the Academy conducted working conferences in two Federal regions aimed at identifying the educational heads of all segments of the fire-related communities of the represented regions:

- Region II Fire Service Education Needs Analysis
 Project conducted by Atlantic Community College, Mays Landing, New Jersey, April 2–4, 1976.
- Region X Needs Analysis Seminar, conducted by the Fire Standard and Accredi-

tation Board, State of Oregon, July 12-14, 1976.

Inter-Agency Education and Training Coordination

Following a number of informal exploratory meetings, three members of the Academy staff met with representatives of the National Wildfire Coordinating Group Training Team at the Boise (Idaho) Inter-Agency Fire Center on June 28 through July 1, 1976, to develop mechanisms for joint action and exchange of information. Cooperative effort in training evaluation systems, instructor training course development, approaches to two- and fouryear college program development and course material production and distribution were identified as areas where close liaison and joint action appeared to be mutually supportive and potentially costeffective. A memorandum of understanding was executed between the Academy and the N.W.C.G. Training Team (which includes Wildfire representatives from Department of Agriculture, Department of Interior and a number of state forestry programs). This Memorandum has led to frequent and regular interaction on a wide range of matters of mutual interest.

EDUCATION AND TRAINING ASSISTANCE

In 1976, the Academy inaugurated a program for financial assistance to states for the purpose of developing statewide fire education and training organizational designs and for comprehensive plans for improving fire education and training within states. The Education and Training Assistance program has five major objectives:

1. Encourage development of a coordinated system to

improve training and education for fire service personnel and others involved in fire safety throughout a state.

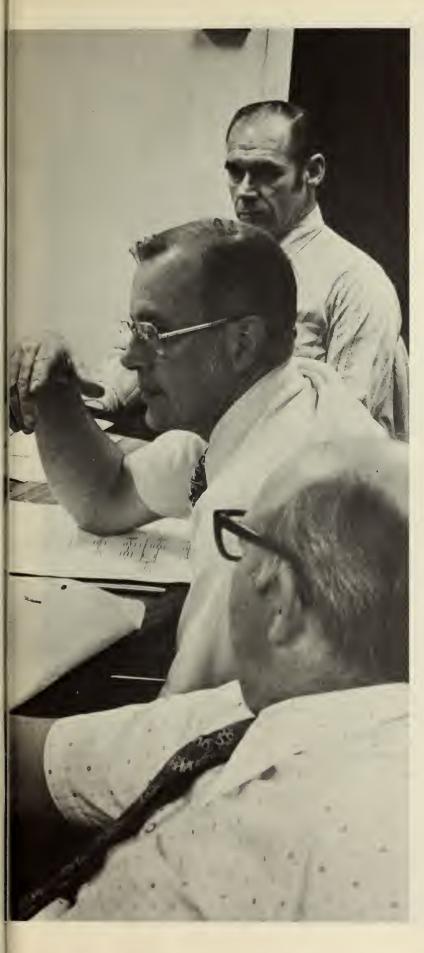
2. Help those responsible for fire training and education to identify present and future needs that can be met more effectively and efficiently by coordinating existing resources and also to identify the training and education needs most likely to be met with current anticipated state resources.

 Help the National Fire Prevention and Control Administration anticipate fire training and education needs by identifying training and education programs the National Fire Academy can provide.

4. Enable the agency through its planning assistance guidelines to encourage those responsible for improving state fire training and education needs of national priority—such as public fire education, fire prevention and control administration and management, code enforcement, and fire and arson investigation.

 Insure participation of all parts of the fire community, volunteer and paid, local policymakers, etc.

Grant applications were reviewed from 30 states, the District of Columbia and Puerto Rico. Available funds permitted 13 states to obtain grants. States receiving grants to create comprehensive plans were Arkansas, California, Nevada, and Oregon. Connecticut, Georgia, Louisiana, Missouri, South Carolina, South Dakota, Texas, Washington, and Wyoming were awarded grants to develop organizational designs.



NATIONAL FIRE ACADEMY Highlights for 1976

- Marjorie Webster Junior College, Washington, D.C., selected by Site Selection Board as site for National Fire Academy.
- Academy offers course in Analysis System of Fire Service Operations at 10 locations in U.S.
- Academy holds conference to aid in development of course work for architects, urban planners, interior designers, and builders.
- University of California, Berkeley, develops course packages for students of architecture and for architecture practitioners.
- Academy conducts seminar on arson detection and investigation.
- Academy conducts seminar at Oklahoma State University for development of model course in Instructor Training.
- Academy conducts conference at Texas A & M
 University to assess needs and priorities of management level fire service courses.
- Academy, in conjunction with California Fire Chiefs, conducts seminar on Lahor Relations.
- Academy, in conjunction with NFSRO, conducts Master Planning Orientation
- Academy, via grant to Delaware State Fire School, conducts a state-of-the-art survey of simulation techniques and technology.
- Academy conducts two regional conferences on Role of Community Colleges and Universities in fire service education.
- Academy awarded grants to 13 states for the purpose of developing statewide fire education and training organizational designs and for comprehensive plans for improving fire education and training.



Assistance to Nation's Fire Services State Level Fire Prevention and Control Programs

major theme of the Federal Fire Prevention and Control Act relates to the purpose of the Fire Administration in supporting and assisting state and local governments. In many cases, state government is a key to the successful development and delivery of Fire Administration programs. For this reason, the Administration must develop a good partnership with state fire officials.

In March 1976 a report was received on the development of a process for statewide fire protection planning. This was the result of a research grant to the State of Illinois, Department of Local Government Affairs. Their investigation quickly uncovered the great diversity among the states in legal responsibilities, delegation of authority, organization, nature of fire protection services provided by state authorities and level of service. After nationwide investigation by the research team, it was concluded that "each state should assess its own status regarding fire protection, decide what role it (the state) wishes to play, then develop a plan to first enable, and then fulfill. that role". A conceptual planning process was suggested which is very similar to that found successful in community fire protection master planning. The concept emphasizes an assessment of fire protection stairs by the state, and within the state, as a necessary and critical first step in the overall process. Further development and evaluation of this planning concept is expected in 1977.

The April 1976 issue of Fireword, the Administration's monthly news bulletin, discussed a preliminary evaluation of state fire programs and suggested some directions that might be taken on the state

level. It was noted that it is not uncommon for state level fire prevention and control programs to be developed and executed by a variety of loosely coordinated agencies-and in varying degrees of quality. It is not infrequent that several state agencies find themselves in competition with each other in pursuit of the same goals. Often state agencies have overlapping authority and responsibility, and some needed services are not provided at all. From time to time the Administration experiences difficulty in establishing programmatic connections with appropriate state-level leadership because there is often no "state fire focus" which represents a clear contact point. In response to these issues, the Administration suggested that state governments should consider creating a "state fire focus" just as the Administration was created as a "Federal focus" on the fire problem nationally. It was suggested that each state could designate a single state entity as having primary responsibility for coordinating state programs related to fire safety. The primary purpose of such a focal point would be to encourage coordination, reduce duplication of effort, and fill voids in service. Secondly, it was suggested that the development and operation of this state fire focus should be executed with meaningful input from organizations and interest groups (such as fire departments and local officials) in the state which are involved in or affected by the state fire prevention and control effort. This focal point might be, for example, in the form of a state fire commission with a broad scope of interest or a state fire administration assisted by an advisory state fire commission.

This concept was published in Fireword to stimulate discussion

and interest with respect to the future directions of state government fire programs. This did indeed create considerable discussion, particularly among state fire officials, state fire marshals and what is usually referred to as the state directors of fire training and education.

Subsequently, the Adminis-





tration received an unsolicited proposal from the International Society of Fire Service Instructors for the purpose of supporting a conference of the state directors of fire education and training in the states. The conference was held October 5-7, 1976, in Atlanta, Georgia, to discuss key issues regarding state fire programs and their relationship with the National Fire Administration. Generally speaking, the state education and training officials agreed that more needs to be done on the state level. For example, the final report of the International Society of Fire Service Instructors Conference says:

"It was agreed unanimously that there is a need for each state to adopt some sort of focal point groups.... We need a single state fire focus, not because the National Fire Prevention and Control Administration tells us we do,

but because a coordinated effort is the only way to achieve the stated goal, a significant reduction in fire losses."

A similar unsolicited proposal was received from the Fire Marshals Association of North America for the purpose of supporting a national conference of the state fire marshals. A similar conference was planned for early 1977.

In the future, the Administration will work with state governments to determine how it can work more closely to improve the state governments' focus on the fire problem and to cause state fire programs as well as Federal/state relationships to be more effective and efficient. In addition, policy issues will be addressed concerning fire program relationships between state and local government and the Fire Administration.

Reimbursement for Costs in Fighting Fires on Property Under Federal Jurisdiction

ection II of the Act authorizes reimbusement for certain costs incurred by fire services in fighting fires on Federal property. A Notice of Proposed Rulemaking containing a draft of the implementing regulations was published in the Federal Register on December 7, 1976. Because of that publication and other efforts to solicit opinions, extensive and numerous comments were received from state and local governments, Federal agencies, unions, fire services, and other nonprofit organizations. These will be thoroughly reviewed in conjunction with the results of earlier interagency consultation and research. A second publication, with the final rules, is expected in 1977. Claims will then be received and processed. It is expected that the final rules will provide that claims may be submitted for fires occurring after October 29, 1974, and before the effective date of the final regulations.





he Public Education Office of the NFPCA addresses the human aspect of the fire problem by providing state and local fire educators nationwide access to effective public education programs and technical assistance in their implementation and evaluation. In addition, research and testing are conducted to determine the most effective way to communicate directly with high risk groups and people in special environments.

In 1975, the Public Education Office identified and analyzed public fire education programs that were effective in reducing fire loss. Based on the results of this study, a systematic approach to public education program development was planned. In 1976, the plan became a reality when the Community Fire Education Planning Model was tested and adapted for use in Oregon and other states and communities. The Public Education Office sponsored research on fire education for special environments such as urban and rural communities and for selected high risk groups. A nationwide smoke detector public education program was planned. In addition, a Public Education Assistance Program was designed to support state and community fire educators through information exchange and technical assistance.

Master Planning for Public Education

The community fire education planning model is based on successful local programs and is tied to the NFPCA Master Planning effort. Using a five-step sequence—identification of the problem, inventory of resources, design of an education program, implementation of the program, and evaluation of program effectiveness—local

fire educators can effectively utilize their local resources and target their education efforts to the areas of greatest need. The systematic planning process was tested in Oregon, where fire educators identified careless smoking as the greatest factor in loss of life and improper use and handling of flammable liquids as the greatest factor in property loss in their state. Educational programs targeted at these specific problems are now being planned for implementation in 1977.

Community Fire Education Programs

Fire is a local problem, requiring local solutions. The Public Education Office is assisting selected pilot communities in solving their local fire problems with the goal of sharing the successes and failures with other fire educators in similar communities with similar problems.

For example, the Buffalo Creek Valley in West Virginia was the scene of a disastrous flood in 1972. The fire station in Laredo was destroyed, leaving the rural valley without fire protection. With funds donated by the Buffalo Creek Valley Fund, residents are creating new fire protection facilities and services. The Public Education Office is providing Buffalo Creek Valley residents with technical assistance in developing community-based public fire education programs. Among other skills Valley residents are learning to conduct their own home inspections.

Urban communities have unique fire hazards and specialized needs for public fire education. Under a Public Education grant to the Louisiana Fire Commission and the New Orleans Fire Department, a contractor continued to study an urban high-risk fire neigh-

borhood in New Orleans. The goal of the program is the identification of community leaders and an evaluation of their capability to transmit fire safety messages.

Fire Safety For High-Risk Victims

Education programs for highrisk fire victims were studied. A series of charts and accompanying booklets for planning education programs for the elderly, adults, children, and youthful fire setters were completed during 1976. Oklahoma State University began working under the NFPCA grant to evaluate existing programs and develop a package of fire safety programs for pre-school and primary school children. Summaries of successful elementary and high school fire education programs nationwide were compiled for distribution to local fire educators.

Educating The Public About Smoke Detectors

A growing awareness of the life-saving potential of smoke detectors by both the fire service and the public demanded smoke detector public education programs. Accordingly, the Fire Administration planned and began implementation of a major nationwide smoke detector campaign during 1976. An NFPCA fact sheet, "Smoke Detectors Can Save Your Life," was distributed to thousands of individuals. In cooperation with the National Bureau of Standards and the Consumer Product Safety Commission, NFPCA published a brochure, "Wake-Up! Smoke Detectors Can Save Your Life If . . ." The brochure presents essential information on smoke detector selection, installation, and maintenance, as well as the importance of home escape planning, in simple, nontechnical language. Development of materials (five Manuals) to aid fire departments and community organizations in implementing Smoke Detector Education Programs was begun in 1976 and will be carried out in 1977 and 1978.

The NFPCA received funding for smoke detector research from the Department of Housing and Urban Development. These funds were granted to the City of Toledo to study the impact of smoke detectors on fire awareness and behavior. The results of the Toledo study will help other communities plan their own smoke detector public education programs.

Public Education Assistance Program

Although fire is a local issue, public fire educators can often adapt the programs and ideas of others to address their own community's fire problems. Cost-effective dissemination of public fire education programs nationwide is the goal of the Public Education Assistance Program.

The first issues of the Resource Exchange Bulletin were published during the year. Established to promote the exchange of ideas, experiences, and programs among fire educators nationwide, the bulletin features short descriptions of local programs. Each article includes the name, address, and telephone number of a local contact for more information. One measure of the Bulletin's success is the growth of its users from 25 to more than 3,000 in one year.

Another function of the Public Education Assistance Program is to assist states in planning and developing a statewide program for sharing public education materials and resources (public fire education conferences). During the year, PEO co-sponsored fire education conferences in Massachu-



setts, Delaware, Utah, Oklahoma, Illinois, California, and Washington. Each conference featured outstanding public education programs from across the Nation and provided a forum for fire educators to share both program materials and ideas. Statewide public fire education and resource system planning was an important result of these conferences.

The Public Education Office gathered more than 60 leading fire educators from 25 states for the Second National Fire Education Conference held at Airlie, Virginia. Among other accomplishments, the attendees gained firsthand experience in using the community public

fire education planning model system in program development. After the conference, many of these local fire educators began using the planning system in their own communities.

Finally, 1976 marked the beginning of a publications program within the Public Education Office. With the purpose of sharing insights from local communities, the Office published "The Human Factor in Urban High Risk Neighborhoods", a description of earlier research findings in New Orleans, and "Teaching Fire Safety Education," an outline of school programs conducted by the Fire Marshal's Office in Guilford County, North Carolina.





PUBLIC EDUCATION OFFICE Highlights for 1976

- Fire educators began using a 5-step system for Community Fire Education Planning.
- Charts and booklets for planning public fire education for high risk groups completed.
- Urban high fire risk neighborhood studied.
- Resource Exchange Bulletins published.
- Public fire education conferences co-sponsored in 7 states.
- "Wake-up Smoke Detectors Can Save Your Life If..." received nationwide distribution.
- Smoke detector effectiveness studied in Toledo.

Fire Safety Effectiveness Statements



s stated in last year's Annual Report, our "program planning documents indicate fiscal year 1978 as the earliest date that some resources could be devoted to a substantial effort in this area." That statement continues to be an accurate appraisal of our program efforts as they relate to the development of fire safety effectiveness statements.

Problems Confronting the Administration of the Act

Resources

Current resources have been selectively apportioned to programs in order to acheive the most effective results possible in specific areas. It has been possible during the last year to conduct a range of programs in response to many sections of the Act, and consistent with the spirit of the Act. However, some choices have had to be made in allocating our resources to authorized programs.

Regulatory Authority

The Administrator of the National Fire Administration is authorized to request assistance from other Federal agencies and to coordinate programs with those units. The Federal agencies are directed to furnish such assistance. The Federal Fire Prevention and Control Act of 1974 authorizes NFPCA to issue model codes and standards, but it falls short of giving the Administrator authority to promulgate mandatory codes and standards.

Despite the regulatory authority now being exercised by Federal, state, and local governments in fire prevention and control matters, critical gaps remain. For example, some existing fire prevention and control equipment is not well regulated as to design or quality. There will also be new fire alarm and suppression technologies which will not fall within existing regulatory schemes. In these areas, NFPCA has unique expertise and could be granted limited regulatory authority particularly where NFPCA has assisted the development of the new technologies. The agency could then be in a position to maintain the integrity and assure dissemination of the fruits of the development it has assisted.

Where state and local regulatory authority exists, enforcement may be lax and the basic codes may be too weak and too cumbersome to amend. On the Federal level, regulatory establishments may be too divided to aggressively provide for a more fire-safe environment. These agencies may also have conflicting priorities, resulting in the de-emphasizing of fire safety as a product of tradeoffs.

Where regulatory authority exists, and particularly in the Federal Government, NFPCA is currently exercising its statutory responsibility to notify Federal

responsibility to notify Federal regulators, and state and local governments as to existing dangerous conditions and as to the need for regulation or enforcement actions.

NFPCA's advisory role is clearly important; it occasionally appears, however, that those with enforcement and regulatory authority are unwilling or unable to accord fire safety the emphasis we believe Congress intended for it. It is in these narrow situations that some regulatory authority may justifiably be extended to NFPCA.

Additional Legislation

ecause the programs in implementation of the Act were in their latter stages of planning and development during the period covered by this Report, we are still reviewing the need for additional legislation.

Many congressional inquiries have been received for

assistance in areas clearly not covered by the Act. Each is reviewed as it is received and each will be considered as we develop legislative recommendations for the departmental programs.

Review of Fire and Building Codes

Ithough P.L. 93-438 authorized the NFPCA to review, evaluate, and suggest improvements in State and local fire prevention codes, building codes, and any relevant Federal or private codes and regulations, no significant effort was possible in 1976. However, new positions were made available late in 1976 which permitted the initiation of program plans in this area. The staff have made extensive efforts to establish relationships with standards and code setting groups and to begin evaluating the process of developing, implementing, and enforcing codes and standards. As indicated earlier in this report under the summary of activities in our Fire Safety and Research Office, some coderelated work has been accomplished through the issuance of several grants. These studies are looking at architectural approaches to fire safety in structures with attention being given to estimates of the cost of various architectural alternatives and investigating potential modifications to code practices and equipment which will make improved designs practical.

Other Items of Interest

Public Safety Awards

ection 15 of the Federal Fire Prevention and Control Act of 1974 established two awards (the President's Award for





Outstanding Public Safety Service and the Secretary's Award for Distinguished Public Safety Service) to be given to qualifying firefighters, civil defense personnel, and law enforcement officers. A Notice of Proposed Rulemaking, containing a draft of the rules necessary to implement the Awards Program, was published on July 26, 1976, in the Federal Register. Comments on the proposed rules were reviewed; changes were made; and the approval of the Secretary of Commerce, the Attorney General, and the Secretary of Defense is being sought for final publication.

The draft regulations provide that firefighters would receive the Secretary's Award from the Secretary of Commerce, civil defense personnel from the Secretary of Defense, and law enforcement officers from the Attorney General. A Joint Public Safety Awards Board, composed of representatives from the three Federal agencies, would assist in the selection of President's Award recipients. In some cases, there would be consultation with the public safety community on the nominations. It is expected that the final rules will be published in 1977. Nominations could then be submitted in 1978 commencing on a date yet to be determined.

Consumer Product Safety Commission

The National Fire Data Center made more than 35 special reports on data in the National Fire Incident Reporting System (NFIRS) for the Consumer Product Safety Commission (CPSC).

The reports displayed fire involving such common products as ovens and ranges, upholstery, and matches. Comparisons were made on the type and form of material ignited and similar factors. The

Data Center has developed a method for retrieving consumer product related incident information.

The Data Center has also set up a network for undertaking in-depth investigations of fires associated with the 10 common consumer products selected by CPSC. This network is now in operation in four states: Michigan, Oregon, Washington, and (Dade County) Florida.

The Data Center will make an analysis of the Household Fire Data Survey available to CPSC when that analysis is complete.

The Fire Safety and Research Office maintained continuing dialog with Commission staff on the technical basis for Commission actions involving smoke detectors, matches, and flammable fabrics standards.

Interagency Coordination

Expanded coordination and liaison activities include contacts with the U.S. Coast Guard fire and safety test facility, Department of Transportation research group, National Bureau of Standards task group on fire safety in buildings, Veterans Administration construction area, and the National Science Foundation's operation of a Federal Laboratory Consortium of over 70 laboratories. In addition, numerous referrals have been handled, putting NFPCA personnel in touch with fire protection representatives in Federal agencies as well as with non-Federal personnel and organizations. Materials used by the Occupational Safety and Health Administration, and the Department of Labor, were disseminated, providing fire protection program help to all Federal agencies.

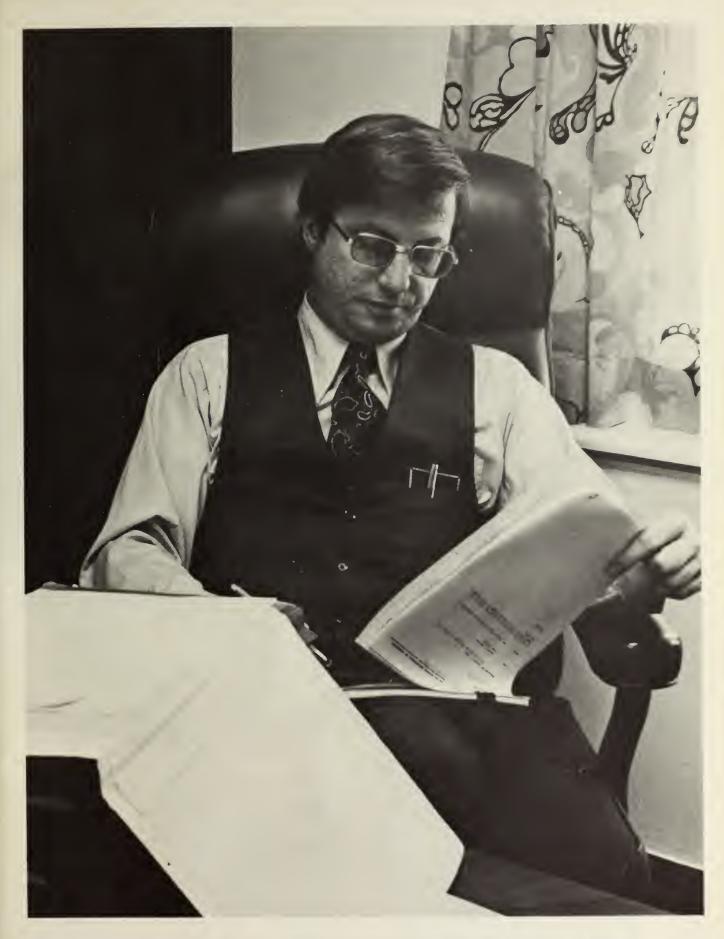
A two-day seminar was held where speakers discussed management and productivity, employee development, work



scheduling, and program emphasis. Also, a one-day demonstration of the latest devices, appliances, and procedures in fire prevention and control was held to facilitate the information exchange. In addition, a Federal workshop was held in conjunction with the Fire Department Instructors Conference in Memphis, Tennessee, to meet the special needs of the 500 Federal personnel in attendance.

Two contracts were started in this period. The first was to identify fire prevention and control advances and new technology developed by Federal agencies in the period from January 1, 1971, through September 1, 1976, for the purposes of publishing a compendium:

(a) identifying items with a high potential for saving lives and property, (b) improving the operating efficiency of fire



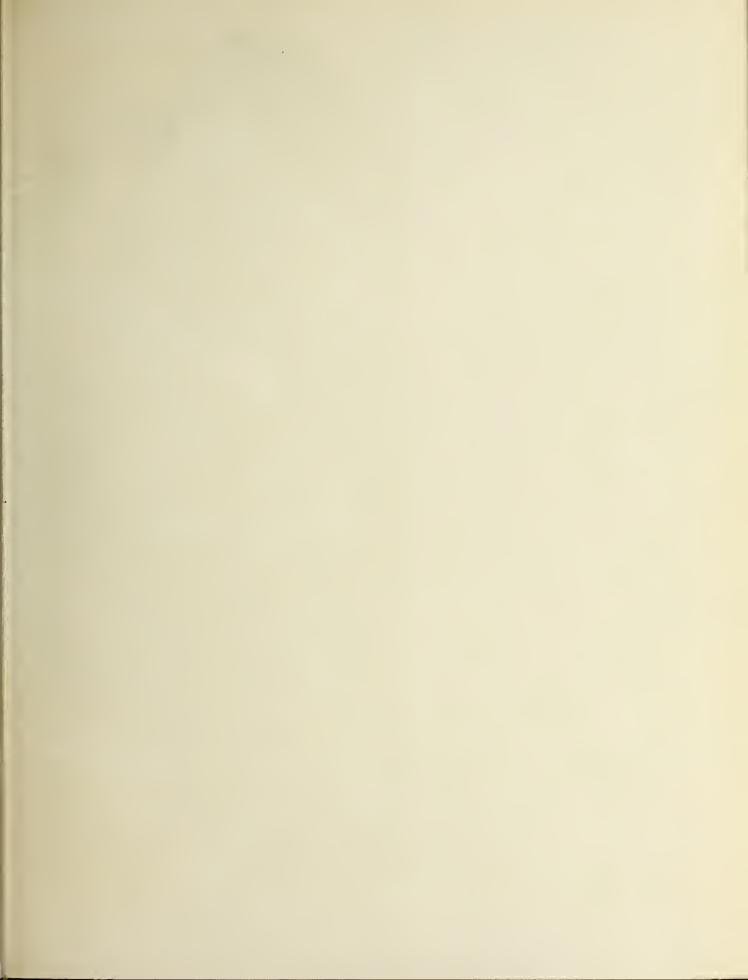
prevention and control systems and organizations having a high cost-effective application to other Federal agencies or in the private sector, and (c) eliminating duplication of effort. The second contract was to identify Federal experts and their specific areas of expertise in fire prevention and control and closely associated fields for the purpose of publishing a directory for reference and inquiry purposes. The first contract is scheduled for completion by October 1, 1977, and the second by August 1, 1977.

Preliminary negotiations were conducted with the Department of the Navy to seek its assistance in developing a recommended fire reporting system that can be used by all Federal agencies in reporting loss statistics and information to the NFPCA in a manner compatible with the system used by the Fire Data Center in obtaining statistics under the National Fire Incident Reporting System. Indications are that many other agencies will use such a system beginning January 1, 1978, provided the pilot effort to demonstrate its feasibility by the Navy is successful.

In conjunction with the fire reporting system for Federal agencies, negotiations are taking place whereby Mississippi State University will analyze 17 years of Federal fire loss statistics (1960-1976) to establish areas that should be attacked on a priority basis to effectively reduce Federal fire losses. This grant should clearly show the advantages of having all Federal agencies utilizing a uniform national fire statistical reporting system.

As part of the interagency operation, reviews of drafts of revised fire service training manuals of the International Fire Service Training Association were coordinated with Federal agencies. Most Federal agencies have adopted these manuals.





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